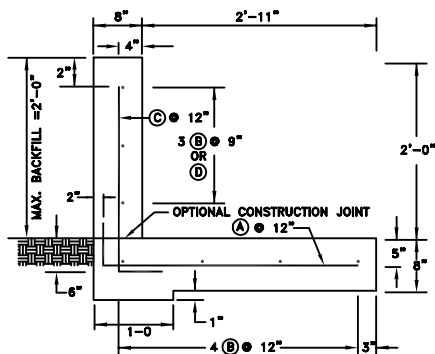


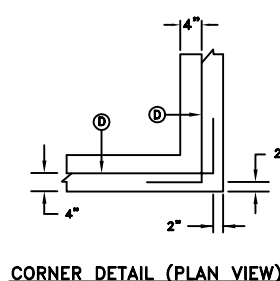
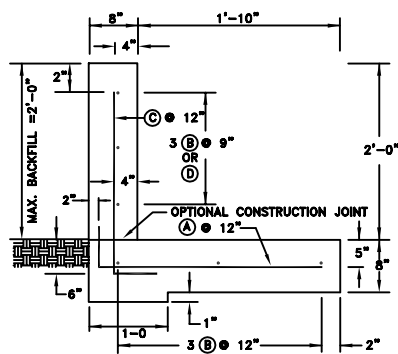
PLAN 1 CONDITIONS OF USE

SURCHARGE = 100 Psf
BACKFILL = 0 TO 2 FEET



PLAN 2 CONDITIONS OF USE

NO SURCHARGE
BACKFILL = 0 TO 2 FEET



WALL & FOOTING CROSS-SECTIONS

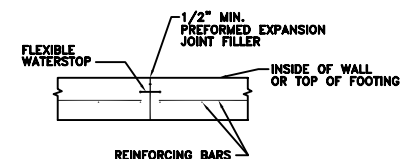
BAR SCHEDULE

MARK	SIZE	QUANTITY	TYPE	a	b	LENGTH	TOTAL LENGTH
A	#4		21	0-6			
B	#4		Str.				
C	#4		21	0-6	2-4	2-10	
D	#4		21		0-6		

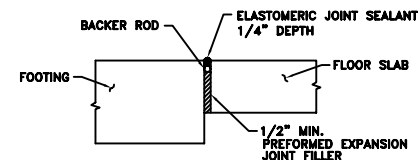
PLAN-1 MARK A b=3'-2" LENGTH = 3'-8"
PLAN-2 MARK A b=2'-2" LENGTH = 2'-8"
• SPLICES IN MARK B AND D BARS ARE 13 MIN.

ESTIMATED QUANTITIES:

QUANTITY	UNIT	ITEM
—	CU. YDS.	CONCRETE
—	LN. FT.	0.141 CU. YDS./FT. (PLAN 1)
—	LN. FT.	0.114 CU. YDS./FT. (PLAN 2)
—	LN. FT.	REINFORCING BARS
—	LN. FT.	" PREFORMED EXPANSION JOINT FILLER
—	LN. FT.	FLEXIBLE WATER STOP
—	LN. FT.	BACKER ROD
—	UNIT	ELASTOMERIC JOINT SEALANT
—	LN. FT.	6" X 1/8" STEEL PLATE
—	LN. FT.	HYDROPHYLIC WATERSTOP

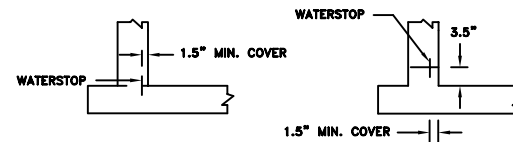


WALL & FOOTING EXPANSION JOINT DETAIL ①



NOTE: A FLEXIBLE WATERSTOP MAY BE USED INSTEAD OF THE BACKER ROD & JOINT SEALANT.

FOOTING-FLOOR SLAB ISOLATION JOINT DETAIL ②



CONSTRUCTION JOINT DETAIL ③

WATERSTOP ALTERNATIVES

- 1) 6" X 1/8" CONTINUOUS STEEL PLATE
- 2) FLEXIBLE WATERSTOP
- 3) HYDROPHYLIC WATERSTOP

DESIGN NOTES:

THIS DESIGN MEETS MEDIUM DESIGN LIFE (20 YEARS).
DRAINAGE SHALL BE AWAY FROM THE WALL.
A 2" MINIMUM BACKFILL IS RECOMMENDED FOR FROST PROTECTION.
BACKFILL SHALL BE SLOPED AWAY FROM THE WALL.

DESIGN STRENGTHS: (WORKING STRESS DESIGN)

CONCRETE $f_c = 3500$ psi STEEL $f_y = 20000$ psi (GRADE 40)

WALL DESIGN LOADING: (REFER TO TABLE 1 - LATERAL EARTH PRESSURE VALVES, 313 STANDARD, SECTION IV OF THE TECHNICAL GUIDE.)

MINIMUM BACKFILL HEIGHT = 0 IN. MAXIMUM BACKFILL HEIGHT = 2'-0"
MANURE LOAD INSIDE = 60 psf/ft. SOIL BACKFILL OUTSIDE LOADING = 60 psf/ft.
WITH 100 psf HORIZONTAL SURCHARGE OR 75 psf/ft WITH NO SURCHARGE.
BACKFILL SOIL WEIGHT - 100 pcf.

FOOTING DESIGN:

MAXIMUM FOOTING CONTACT PRESSURE 550 psf.
WATER TABLE MUST BE BELOW THE FOOTING ELEVATION.

WALL RESTRAINT:

WALL MUST BE RESTRAINED WITH A FLOOR SLAB WHEN BACKFILLED.
(5" THICK SLAB ASSUMED, SAFETY FACTOR AGAINST SLIDING 1.3 MIN.)
PLAN 1 - 16 FEET MINIMUM UNRESTRAINED SLAB LENGTH.
PLAN 2 - 7 FEET MINIMUM UNRESTRAINED SLAB LENGTH.

GENERAL NOTES:

1. STANDARDIZED DESIGN: MUST BE ADAPTED TO SPECIFIC SITE.
2. A 6" MINIMUM THICKNESS OF COMPACTED SAND OR GRAVEL SUBBASE SHALL BE PLACED UNDER THE FOOTING.
3. CONSTRUCTION JOINT DETAIL ③ IS OPTIONAL.
IF SLAB AND WALL ARE POURED SEPARATELY, THE SLAB SURFACE MUST BE THOROUGHLY CLEANED WITH WATER AND A WIRE BRUSH. THE SURFACE OF THE JOINT SHALL BE KEPT MOIST FOR AT LEAST 1 HR. PRIOR TO PLACEMENT OF NEW CONCRETE.
4. IF WATER TIGHTNESS IS NOT REQUIRED, FLEXIBLE WATER STOPS, ELASTOMERIC JOINT SEALER & BACKER RODS MAY BE ELIMINATED. FROM JOINT DETAIL ① + ②
5. SEE MIN PRATICE STANDARD 313 FOR EXPANSION JOINT SPACING.

SPECIFICATIONS:

1. THE CONCRETE SHALL BE AIR ENTRAINED.
2. THE CONCRETE SHALL BE CLASS 3500.
3. THE SAND OR GRAVEL SUBBASE MATERIAL SHALL BE CLEAN PIT RUN SAND OR GRAVEL WITH LESS THAN 5% BY WEIGHT PASSING THE #200 SIEVE.
4. THE BACKER RODS SHALL BE 1/8 INCH LARGER THAN THE WIDTH OF THE JOINT.
5. THE HYDROPHYLIC WATERSTOP SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

VIEWS & DETAILS NOT TO SCALE

DESIGNED BY: (NAME)
DRAWN BY: (NAME)
CHECKED BY: (NAME)
APPROVED BY: (NAME)

WASTE STORAGE STRUCTURE
2 FOOT HIGH REINFORCED CONCRETE WALL

USDA NRCS
Natural Resources Conservation Service

File No.
MN611.DWG
Drawing No.
MN-ENG-611
8/02

REV	DESCRIPTION	DATE

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